



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,106	04/06/2004	Hong Wang	2003P14134US	8261
7590 12/10/2008				
Siemens Corporation Intellectual Property Department 170 Wood Avenue South Iselin, NJ 08830			EXAMINER SHAHRESTANI, NASTR	
			ART UNIT	PAPER NUMBER
			3737	
			MAIL DATE	DELIVERY MODE
			12/10/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/820,106

**Applicant(s)**

WANG ET AL.

**Examiner**

NASIR SHAHRESTANI

**Art Unit**

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 08/22/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 08/22/2008 have been fully considered but they are not persuasive. Applicant argues that the amended claim 48 is now sufficient to overcome the rejections under 35 U.S.C. 101. Examiner respectfully disagrees.

In response to applicant's arguments regarding the rejections under 35 U.S.C. 101, the recitation "operates on a computer" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). As such, the rejection is maintained.

Examiner further disagrees with applicant's remarks regarding the rejections under 35 U.S.C. 103(a) of claims 1-59.

Initially, applicant argues (REMARKS, page 12) that Ma et al. are silent regarding voltage levels, namely predetermined voltage levels.

Examiner respectfully disagrees and maintains that the term "predetermined voltage" is a very broad term and holds that all signals have some kind of a "predetermined voltage" level associated with them.

Furthermore, applicant argues that Ma et al. do not teach or suggest a duty cycle selected in response to one or more of a restriction on surface temperature of a transducer, and a restriction on transducer power output.

In the previous Office Action dated 05/27/2008, examiner also agreed that Ma et al. do not teach nor discuss duty selection in response to a restriction on surface temperature of transducer and as such, the Miller et al. reference was applied to show the obviousness of the mentioned limitation.

The Miller et al. reference was not used in order to teach that both imaging modes are using the same predetermined voltage.

The Ma et al. reference, taken alone or in combination with another reference, is sufficient to render obvious the use of the same predetermined voltage level for a second imaging mode. If a signal is generated for a second time, or in other words repeated for a second trial, the voltage of the second mode would be the first as the second mode. Ma et al. includes a more advanced feature of providing differing imaging modes with predetermined voltage values of signals. The use of a single predetermined voltage value in repetition would have clearly been an obvious modification to one of ordinary skill in the art.

Applicant further argues that Ma et al. are silent regarding power supplies. Examiner respectfully disagrees and holds that power supplies are not only an inherent feature of imaging system, but furthermore that Miller et al. clearly discloses a power supply that provides a variety of duty cycles.

Applicant further states that Doppler color-flow imaging and Doppler-spectral imaging are not the same. Examiner respectfully disagrees and holds that the term Doppler color-flow imaging can be interpreted as a type of spectral response analysis used to create an image.

**In view of the above stated responses, the previous rejections presented in the Office Action dated 05/27/2008 are maintained.**

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 48-59 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 48-59 are non-statutory because they recite a mathematical algorithm per se without a required practical application (no physical transformation and no useful, concrete and tangible result). The mere recitation of "a computer-readable medium" does not overcome the non-statutory status of the claimed language.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-59** are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. 2003/0236460 A1) in view of Miller et al. (U.S. 6,669,638 B1).

Ma et al. teach and method for Adaptive Ultrasound Image Fusion (see title) wherein a B-mode imaging mode (element 20) in combination with a Doppler imaging mode (element 22) are combined (using combiner 26). Ma et al. further teach the use of color flow imaging (par. 0005). Furthermore, Ma et al. show the combiner (element 26) is operable to calculate or generate individual display indicia representative of an image region as a modulated, non-linear or other function of both the Doppler and B-mode image signals (par. 0031).

Ma et al. do not specifically teach nor discuss duty cycle selection in response to a restriction on surface temperature of a transducer.

Miller et al. teach an Imaging Ultrasound Transducer Temperature Control System and Method (see title), a method of controlling the heat of an ultrasonic transducer is disclosed (see abstract). Miller et al. further teach changing imaging modes from B-mode imaging to that of A Mode or M Mode (col. 3 lines 9-22) and wherein the system cycles rapidly between a higher power imaging mode and a lower power imaging mode, and the resulting data is combined to form a single image (abstract). More importantly, Miller et al. teach wherein various parameters (i.e. duty cycle) can be modified in order to reduce the ultrasonic transducer temperature (col. 10 lines 3-16).

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the apparatus and method as taught by Ma et al. and to have incorporated the teachings of Miller et al. to acquire images at different modalities while maintaining a standard of temperature across the transducer(s).

The repetition of acts (a) - (e) would have been obvious to one of ordinary skill in the art.

Miller et al. further teach temperature sensors and regulation of temperature based on pre-determined standards (col. 6 lines 8-13).

Miller et al. teach a power supply (element 320) under control of controller (element 301), supplying regulated power to various components of the ultrasonic system.

Ma et al. teaches wherein the user shifts the pulse frequency (par. 0036).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NASIR SHAHRESTANI whose telephone number is (571)270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BRIAN CASLER/  
Supervisory Patent Examiner, Art Unit  
3737

/Nasir Shahrestani/  
Examiner, Art Unit 3737